outer edge only, with no dye penetrating into the fissure itself. No surfaces had dye penetration to the bottom of the fissure. With respect to material penetration into the fissure, this material flowed easily to the extent of the fissure. These results indicate both excellent sealing and protection of the tooth from fluid penetration.

Example 9

Example 9 was 42.7% acidic monomer with no filler. 1,6 dihydroxy hexamethylene dimethacrylate, is substituted for hydroxyethylmethacrylate to provide more hydrophobic character to the material.

Example 10

Example 10 is a two-part composition which is dual cure (can be cured by light or left to autopolymerize after mixing, or both). Part A and Part B are mixed in equal parts. Te mix can be light cured upon demand. The autopolymerization can be controlled; in this example, it starts at 4:30 minutes and is completed by 10:00 minutes. Part A has 48.4% acidic monomer, 37.2% filler and contains both sodium fluoride (1.10%) and water (0.73%). In Part A, 1 acetyl-2-thio urea was substituted for camphorquinone. The material sets to a very strong, hard mass in either self cure or light cure mode. The material has very good retentive properties with respect to metal ceramic as well as tooth structure. The material has very good retentive properties with respect to metal and ceramic as well as tooth structure.

Example 11

Example 11 is a more highly filled material. The filler percentage is 60.0%, with 1.10% sodium fluoride and 0.24% water. The acidic monomer percentage is 10.55% overall, or 28.54% relative to only the primary monomers. The material is strong, as indicated by a compressive strength of 260 (20) MPa.

Example 12

Example 12 has 41.7% acidic monomer, 10.14% water and 37.3% filled. The material sets within 10-15 seconds to a hard mass with a dental curing light. The material has a compressive strength of 71 (4) MPa. The material may be used as a dentin replacement material or as a base/liner within a restoration.

Example 13

Example 13 has 42% acidic monomer, 15% water and 22.85% filler. This material contains NaF and releases fluoride ions. The material has a compressive strength of 43 (2) MPa

Example 14

Example 14 has 42.68% acidic monomer, 5% water and contains only sodium fluoride, with no undissolvable filler. The material contains 5.00% 1,6 dihydroxy hexamethylene dimethacrylate instead of hydroxyethlymethocrylate. This material may be used as a glaze. It releases fluoride.

Various modifications and alterations of this invention will be apparent to those skilled in the art without departing from the scope and spirit of this invention. This invention should not be restricted to that set forth herein for illustrative purposes only.

What is claimed is:

1. A method of treating a tooth comprising:

a. applying a polymerizable composite material, devoid of any glass ionomer, having

i. a total monomer content comprising at least one multifunctional acid-containing monomer, the at least one multifunctional acid-containing monomer having a concentration ranging from about 10% to about 85% by weight based on the total weight of the composite material,

ii. a non-reactive filler having a concentration ranging from about 1% to about 80% by weight based on the total weight of the composite material,

iii. a polymerization system capable of being activated by light to polymerize the composite material, the polymerization system having a concentration ranging from about 1.1% to about 15% by weight based on the total weight of the composite material and comprising a photoinitiator and an accelerator, the accelerator having a concentration ranging from about 2.0% to about 50% by weight based on the total monomer content, and

iv. water having a concentration ranging from about 0.1% to about 25% by weight based on the total weight of the composite material; and

b. activating the polymerization system by applying light to the composite material, the composite material not functioning to bond to any material distinct from itself onto the tooth.

2. The method of claim **1**, wherein the composite material constitutes a pit and fissure sealant.

3. The method of claim **1**, wherein the at least one multifunctional acidic monomer comprises an acidic monomer having an acid group, wherein the acid group is phosphoric, phosphonic, phosphinic, sulfuric, sulfonic or sulfinic moieties.

4. The method of claim **1**, wherein the at least one multifunctional acidic monomer comprises bis-2(methacryloyloxy)ethyl phosphate.

5. The method of claim **1**, wherein the non-reactive filler is silica, radiopaque glass, barium aluminum silicate, silanated silica, alumina, quartz, or a combination thereof.

6. The method of claim **1**, wherein the total monomer content further comprises a non-acid co-monomer having a concentration ranging from about 5% to about 80% by weight based on the total weight of the composite material.

7. The method of claim **6**, wherein the non-acid co-monomer is diurethane dimethacrylate, hydroxyethylmethacrylate, trimethyol propane trimethacrylate, 1,6 dihydroxy hexamethyene dimethacrylate, triethylene glycol dimethacrylate, bis glycidyl dimethacrylate, or a combination thereof.

8. The method of claim **1**, wherein the photoinitiator is camphorquinone, acryl phosphine oxide, benzoin, methyl benzyl ether or a combination thereof.

9. The method of claim **1**, wherein the polymerizable composite material further comprises an ionic compound having a concentration ranging from about 0.01% to about 10% by weight based on the total weight of the composite material.

10. The method of claim **9**, wherein the ionic compound is sodium fluoride, stannous fluoride, iron fluoride, calcium fluoride, aluminum fluoride or a combination thereof.